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THE VIRGINIA
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THE PLACE AND PRICE OF EXCELLENCE

JACQUES BARZUN

Provost and Dean of Faculties, Columbia University

Although there are many subjects in which I am sure you take an interest comparable to mine, I have chosen one which (as I hope) is particularly suited to your present concerns and also to the time. You are students, presumably engaged in studying; you are graduate students, who may soon become teachers; you are parents or shortly to become parents; you are citizens, whose votes and whose taxes are being, or going to be, solicited in the name of education. I am accordingly going to talk to you about education — or so it would seem. But as I have often said, talk about education bores me, so under guise of education I am going to talk to you about Intellect and Intellect of the kind that is rarest and most excellent. I am going to use the facts and the follies of education to talk to you about intellectual excellence.

The word *excellence* has a pleasing sound. But it has been a long time since we in the United States have heard it from anybody but an advertiser. We associate excellence with the products of industry, not only because we are told they are excellent, not only because the price we pay and the effort we make to obtain these artifacts seem to justify our hope of their excellence, but also and, I think, chiefly, because we are very sure that, being artifacts, those which are declared excellent will not incur the resentment of the others.

If this is true, it means that we are still very much alive to the idea that underlies excellence — the idea of excelling, of raising oneself so as to be better or greater than, or superior to, another. We are alive to this idea at large, but we do not like to apply it to persons. We suppress it in our social life and even in our private thoughts, because it seems to run counter to another idea that we cherish more stubbornly — the idea

*An address before the third convocation of the Graduate School of Cornell University. Published by Cornell University.

of equality. We find it repugnant to our political professions and our democratic manners that anyone should be believed in any better or greater than someone else, should know himself to be, or should act as if he were, in any way superior.

Very recently, however, a public report on the state of education, prepared for the Rockefeller Brothers' Fund and drafted under the direction of Mr. John Gardner, the head of the Carnegie Corporation, was issued with the title: "The Pursuit of Excellence." In the light of our ancient prejudice about the word, the use of that phrase seems to me to mark a turning point in the national opinion.

The phrase did not, of course, provoke the change. Rather, it confirmed the fact that the change was taking place. For the change is not merely in education, any more than it is a rediscovery of excellence in living beings after a long siege of confinement in dead things. To talk of excellence in connection with education is much more momentous than appears on the surface. For what does excellence in education or learning really refer to? It refers to intellect. To talk of excellence in education means to talk to the place of Intellect in the national life. And this is almost unheard of. Education with us has been for every good purpose, I will not say, *except* an intellectual purpose, but every good purpose *ahead* of an intellectual purpose. It has been for character, citizenship, health, social and individual adjustment, cultural assimilation, vocational aid, profitable friendships, marriage opportunities, and hobbies of distinction. The desire to raise the Intellect to new heights has not existed or been avowed. And we are still far from according Intellect a clear place; the Rockefeller Brothers' report seems to speak of it as if it were the same as creativity, which it is not; but even creativity they want to have thrive "in a context of concern for all." This is hedging: clearly we do not quite know what Intellect is, and what we do know we are afraid of. But we have at last come face to face with the fact that Intellect exists, and we mean somehow to come to terms with it.

The general public today probably thinks that the present agitation about education and the training of talents dates from the Russian success in launching rockets. But that is not so. The unrest and criticism came well before. Some of you will remember the reports of the President's Commission on Higher Education, the vogue of the book *Why Johnny Can't Read*, the mounting protest against so-called progressive methods, and the repeated exposures of folly and futility in our colleges and teachers' colleges. These and other like events show that the unassuming citizen has in the last few years been acquiring a new and well founded-worry.

Still earlier, there had been a good deal of quiet self-scrutiny by

professionals, usually encouraged by the foundations. The phrase "gifted child" emerged from these inquiries. The two most notable were perhaps the experiment in Portland, Oregon ,which put the brightest children of all grades in speedier classes, and the advanced placement plan of acceleration devised by three colleges and three leading private schools in the East. The result of these pointed attentions that are paid to intellectual talent and have regard to the flight of time has been to make the American people recognize the inadequacy of their schools. The schools are inadequate because they culpably neglect the national resource of Intellect.

But this growing recognition, important as it is, does not bring us the remedy. Mere speed for the gifted is not enough. Larger doses of science and mathematics and American history will not change the strength and character of the instruction. If the diet is poor, undernourishment is not cured by larger amounts. Most important, inadequate arrangements cannot be bettered by people who have never found anything wrong with them. To put it more generally, the country is only beginning to perceive that its schools are not independent of the surrounding world: the world of parents, legislators, businessmen, journalists, and government officials. It is their ideas that have so far prevailed—ideas we need not scorn entirely for they have made good up to a point the adventure of mass education. In 1900 no one believed that the free, public, and compulsory high school could work. Well, it does not work very much or very well, but it works. Enough to be imitated, right now, by most of the countries of Europe, which are cheerfully repeating our early mistakes: our colleges and universities are also semi-mass institutions, remedial institutions for high school deficiencies; and to this Europe has not yet attained. *We* are at the point of farthest advance, and we are dissatisfied. Looking back on half a century of improvisation, we begin to see that some of our deepest convictions will have to change if our various schemes of improvement are to make a difference.

For the admitted evil—the inadequacy of school and college,, in particular the wastefulness of the high school—is not one that can be removed by once more tinkering at the curriculum and patting a few gifted youths on the head. The notion of the gifted is true and useful, but it stops short of the response to Intellect which we must make if, hand in hand with the Rockefeller Brothers, we are not only to pursue excellence but occasionally to catch up with it.

At the moment, the gifted child stands in the public mind as an agreeable freak of nature, hitherto undervalued but well worth cultivating, indeed, almost as interesting as the retarded child. The two types balance each other like a pair of exotic vases on a mantelpiece. Both types, we think, are given us plainly marked by nature, fated to be what

they are. This may be true of the retarded; I am sure it is not true about the gifted. Their discovery, to themselves and by others, is not inevitable: it depends on the presence or absence of an intellectual atmosphere, on the awareness and accpetance of Intellect as a force. One of the most unexpected results of the Portland experiment was that, after a few months of the accelerated program, *those not in the program began to do better work*. Another startling result was that some notorious problem children, when given harder work to do, became good citizens. They had been bored, of course, and they had set fire to wastebaskets in order to have something to occupy their minds. Surely, in the light of such facts, we cannot consider the gifted child a natural species, which only requires the good treatment of a well-run zoo. We must on the contrary regard Intellect as potentially present in many individuals, and therefore as a power to be brought forth by making the school a place where intellectual effort and achievement are regarded as normal and necessary.

In the opposite outlook, which is still strong, I detect a secret desire to go on protecting equality, that is to say, to continue muffling excellence by showing, as is easy to do, that "Intellect isn't everything," that "to be smart isn't an unmixed blessing." Both propositions are true, but what have they to do with a school or university? As well argue in an opera house that "singing isn't all of life," and that Mozart's lot was not one of unmixed blessings. The equalitarian tradition, misapplied to our educational institutions is still so powerful that even in our present anxiety about places for the new generations in school and college, there lurks a hope that the strict measures being advocated may be only temporary. When our own rockets are cutting figure eights around the Russians', we can go back to quietly neglecting all normal, healthy, unintellectual American boys, and to lavishing expensive care on our true favorite, the slow mind.

You will not, I am sure, suspect me of wanting to deprive unfortunate boys and girls of the least help which lovingkindness bestows upon them. I dwell on their situation because the country dwells on it, and in so doing creates the contrast I want to make clear. As regards the mind, the American school or college is, generally speaking, not an educational, but a *philanthropic* institution. It tries to reduce competition and abolish failure; it is interested in the sociable personality rather than in the powers of Intellect; above all, it wants to preserve its own brand of happiness, in which everyone can—indeed must—participate. The worthy effort to make the handicapped feel that they are not outcasts but fully accepted members of the group—that effort is matched by another, directed at the gifted, superior, perhaps eccentric person, and intended to

assimilate him—literally to make him similar, to rub down his natural contours till he, too, is spherical and smooth and fit to serve as an interchangeable part in the social machine.

The proof that this characteristic effort of our schools springs from philantropic feeling and not from hostility to special talents in that our schools and colleges make a great point of self-development and the diversity of aptitudes. Teachers are instructed to watch for individual differences and to let each student develop at his own pace. That is why the idea of intellectual competition has nearly disappeared, why in many places numerical grades have been replaced by verbal accounts written like psychological novelettes, why courses once taken and credited are good forever, regardless of evaporation, and why the word and the fact of failure are forbidden as scandalous and destructive. The ideal modern school, as we all know, is one in which contentment reigns because the young person is steadily pleased both with what he does and with the fact that others are pleased with him.

Now if we step from this little utopia to the training quarters of a successful athletic team, we find a very different state of affairs. The boys being trained are indeed the same that we encounter in any of a thousand classrooms in the country, but on the field their view of life is suddenly and radically altered. To begin with, a special seriousness pervades the atmosphere; the boys are not contented but visibly anxious. One feels the concentration of many strong wills on one object. There is little aimless action. Everyone takes advantage of the intervals of free time to jump, swing, flex the muscles, to practice throwing, catching, running. The coach and his assistants are as much interested as the classroom instructor in individual development, and they are keen watchers of diverse apitudes. But they clearly have in mind for each individual a fixed idea of what constitutes performance. Far from letting each set his own pace, they hold him to a standard of their own choosing. If he does not meet it ,he fails. Let me make the point clear: if he fails, he fails. There may be reasons for the failure, but no excuse, and certainly no consolation prizes and no verbalized psycho-apologies to the parents. On the contrary, I am told that the verbalizing of football coaches in moments of stress is far from apologetic.

The reason for this atmosphere of the training quarters is quite simple: the game is serious business. It engages the minds, hearts, and passions of all concerned, from coach to player to spectator. Training is therefore serious too. And when people are serious, no confusion is tolerated between performance and failure. No amount of desire to make up for the accidents of birth would induce anyone to give a slow-footed or slow-witted youth a place on the team. Our philanthropic, remedial impulses do not stretch quite so far. Indeed, we would consider any such

tempering of the mind either corrupt or stupid, and we would sack the coach. When, on the contrary, one of his atheletes is named to the All-American team, after the most solemn screening by the best official and unofficial judges in the country, all those interested are confident that they have witnessed from first to last the true way of discerning, developing and rewarding excellence.

The comparison I have just drawn, obvious as it is, contains the lesson American parents and teachers must learn. They must not say: "Yes, yes, we know it." They must believe it and act on it; they must do this no matter how strange it feels to believe what you say when you speak about education.

What the lesson tells us in familiar, unmistakable steps is what the definition of excellence implies: excellence means excelling, which means exerting the will to improve on nature according to rule. To squeeze high performance out of native ability, stern demands must be made by the talented on themselves, but these demands must come ultimately from the world that desires and rewards performance.

And yet, and yet . . . simple and persuasive as is this set of specifications, it is likely that something more has to be said before we are finally convinced. The contrast between classroom and playing field seems to accuse us too easily of being serious about games and frivolous about brains. Not all Americans are lifelong children enamored of sports. Not even all Europeans, whose sporting fever is by now worse than ours, have lost their senses. Why then do we hear of Europe's growing difficulty in maintaining intellectual standards—in their schools, universities, and professions? Since European attempts at mass education are much more recent than ours, we are forced to conclude that a connection exisits between the neglect of intellectual excellence and the culture of a thoroughgoing democracy.

Ask anybody why it is right that tennis players should be weeded out by ruthless public competition and why it is also right that Johnny, who cannot spell, should merely be asked to try again a little harder. You will be told the object of tennis championships is simply to discover winners, whereas democratic schools have complex goals, of which supremacy in spelling is not even one. Schools are to keep children out of mischief and out of the labor market; they are to give the young of the country a common experience and a sense of their opportunities. The most taxing business of the modern school is to take the native and the foreign, the poor and the well-to-do social and induct them into the maze of industrial life. The school's primary aims are thus social and vocational rather than intellectual. And properly so, because the home is no longer an educational institution. It is at school that children must learn about

hygiene and safe driving, about the machinery of local government and the problems of adolescence. On top of this, the majority will want to learn shorthand and typewriting, home economics and the shop techniques known as industrial arts. What is now going on in schools of Western Europe is a reminder of our own past, an explanation of the natural law that, under the pressure of numbers, public schools will turn from being seminaries of Intellect to being social centers for multiple "adjustments."

Since this is true and since what we learned of the nature and conditions of excellence is also true, we would seem to have reached a deadlock. Or rather, our present desire to exploit the national resources of Intellect has brought us to see that there is a need, there is a place, for two markedly different institutions under the one name School. I also include under it college and university. We cannot do without the type of school or college I have described as a social center for assimilation and vocational guidance, and it is a safe guess that we shall continue to have it. The question is whether we want the other kind, the intellectual institution, which must take for granted much that the first kind is meant to impart. In other words, Intellect is a special interest requiring a special apparatus, a special nursery, if you will, though one which, to be effective, must not look like an isolation ward.

There is in fact no reason why the two types of school should not exist side by side in the same building, or on the same campus; nor why boys and girls with an intellectual bent should not share certain classes with others and attend special ones of their own. According to the National Defense Education Act (Public Law 85-864), the country needs linguists. Now, good linguists start young, and learned ones need to know many languages, including Latin, which the sales manager and agriculturist do not need. Why not, then, have the future linguists go to Latin class by themselves and join their friends, the farmer and businessman, in the government class? The way the president is elected and the principles of public hygiene are the same for all, whereas the concern with deponent verbs is not.

In theory and practice, then, the country's desire to see some of its young pursue intellectual excellence does not imply any new and invidious segregation. Such separation as must come is exactly like that required by the pursuit of athletic excellence. There is a training table reserved for the fit competitors and denied to the rest. No choice is imposed by force or privilege. Nature, taste, and sometimes family tradition dictate the path.

Fortunately for our intellectual renascence, separations on intellectual grounds already exist or survive in rudimentary form. Certain high schools are noted for their excellence in art or in science or in the aca-

demic program generally. They serve communities where these accomplishments are valued. Certain colleges are renowed for their faculty and for the atmosphere of Intellect and the tradition of excellence which they have sustained for generations, since a time before mass education. The position of these schools and colleges makes them the natural leaders and best models of the School as an institution designed to nurture Intellect. They are free from close legislative control, free to choose their staff and students, free from irrelevant demands by militant and misguided taxpayers. All they have to contend with is lack of money and interference by militant and misguided parents and alumni. And by and large, thanks to intelligent and courageous leadership, they have resisted these errors born of meddlesomeness out of cultural conformity.

But this ever-present threat from the naive champions of thoughtless social pressures brings us back to the central issue: what should the cultural temper be to foster excellence, what price must we pay—quite apart from fees and gifts to endowment—to provide the favoring conditions?

Please note that I speak of providing the *favoring conditions*. Excellence cannot be bought or even asked for. You cannot without absurdity tell the waiter to bring you "an excellent cup of coffee." You can only ask him for a cup and hope that when tasted it will prove to be excellent. Similarly, the desire for intellectual excellence must begin soberly with the simple desire to establish and maintain the conditions of good work. Well, up to a point there is no lack of that desire. Those in charge of education and the public too, acknowledge the need for good equipment. Modern seats of learning can gererally boast a superb *physique*. But this is evidently not enough, or we should not be at the cricitcal juncture we are discussing here. No one has ever believed that the high quality of the training table was the sufficient cause of a winning team.

Nor in scholastic work is the cause exclusively good teachers. You can anticipate what I am about to say: the conditions that favor excellence cannot work singly. If we cannot have them all, we must at least have several, and these must be bound together by the atmosphere of concentrated effort and high seriousness which we saw in the training quarters, the discontent and the will to excel which we find wherever achievement is preferred to pious hopes.

Once established, that atmosphere is not difficult to sustain. What is hard is to begin. The world is still amazed at the remarkable outburst of great painters in the small towns of Renaissance Italy. A glance at the history shows that after a school had got under way, thanks to the coming together of two or three geniuses, talent sprang out of the ground and rushed to the masters' ateliers. The concentration of eager minds, the intensity of their rivalry, and the awareness of an enthusiastic public,

raised otherwise ordinary gifts to a higher power, to excellence. Atmosphere did it.

If, therefore, I am to answer literally the question implied in my title, the place of excellence is wherever there is the least glimmer of consciousness about its nature and requirements. If we grant that the country's main discovery and training of Intellect—for science, art and public life—can be carried on only in school and college, in certain dedicated schools and colleges, these places will be hampered and diminished if they are not surrounded by an atmosphere in which excellence is a familiar spirit. The home must, before all others, give it thought and room. How can a child or youth strive to excel in study, if his parents in their unguarded moments show their indifferences to Intellect, books, ideas, science, art—in a word, to the mind of man?

In the second place, the school or college must be staffed by men who recognize intellect when they see it, in one another and in their students. There is nothing automatic about this. Many teachers respect industry, politeness, and even flattery, who would be taken aback by an encounter with Intellect. For the young Intellect who is laboring to excel is quite different from the grind and the apple polisher trying to impress or to please. The test of Intellect is that its inerest is genuine. It is indeed often necessary for a student to pretend an interest is genuine. It is indeed often necessary for a student to pretend an interest he does not feel: he *has* to do twenty calculus problems or write a 3000-word essay. But if he is ever to be educated, there must come a time when the problems grip him like a detective story and when he charges at the 3000-word limit because he has so much to say.

Intellect, in short, is a passion like any other. We who teach acknowledge this when we say of a student that he has at last caught fire. This is the very reason why the young Intellect must not be isolated. He must have others of his age similarly engrossed, or the fire will be that of the single stick—a spark, a bit of smoke, and then blackness. Nor is it enough for him to be encouraged at home and by the masters. The regular fellows, with palpable muscles and wearing the right kind of disreputable clothes, must also feel the nascent intellectual pasions before any one youth—and by extension any school or college—can tread firmly and with characteristic zest on the path of excellence.

These being the geographical conditions, so to speak, what are the emotional costs? And first of all, do we, for the sake of Intellect have to give up, two centuries after Jefferson's *Declaration*, the doctrine of equality? A few weeks ago in *Time* magazine there appeared a report that a new college for science and engineering was being sponsored by a group of midwestern businessmen. Seeking excellence, they said in com-

menting on the new college, they were bound to confess their disbelief in equality. The doctrine was false and must be given up.

If correctly reported, the statement is a foolish one. Equality has nothing to do with merit, talent, or Intellect. Equality is a social and political assumption necessary to a certain form of government and congenial to the citizens of the United States. When we say that we are all equal, we mean precisely that the posession of wealth, or physical stature, or mental powers will make no difference in law and in manners. Equality in this sense is the result of a deliberate choice which requires self-control and aims at social simplicity.

Consequently, the discovery that men are not equal because one is tall and the other short, one stupid and the other bright, is irrelevant. Equality simply enjoins that these obvious differences shall make no difference in rights and privileges—it is the way a host treats his guests. You may say that Jefferson believed we were "created equal," not simply endowed with equal rights. True, but if by analogy with a parent we try to imagine the point of view of the Creator, we see at once that our individual differences of talent or merit simply do not matter. That, if anything, is the meaning of the Fatherhood of God—in essence, stripped of local attributes, we are equal, if only because any virtue or power we may boast of implies no other. And who can add up all our traits and reach a total to compare with others? We are therefore equal in being incommensurable.

By the same token, when society incurs expense to develop intellectual power in those capable of it, the cost does not include giving up the principle of equality. Even now, the physician's education costs perhaps ten times as much as anybody else's. We think, rightly that he amply repays the social investment, and we know that his difference from the rest of us does not make him a member of a dangerous elite.

No, the emotional price we must pay for intellectual excellence is not the loss of social equality. It is a more personal and intimate loss, to which I alluded earlier in speaking of competition and in contrasting our present philanthropic schools with the educational ones we are beginning to desire. The price of excellence is the acceptance of pain, error, failure, even, I dare say, cruelty. This we are not used to. We love the young and want to see them happy and successful. We understand so well their confused feelings, their good intentions, their seemingly limitless possibilities of worth that we instinctively avoid dwelling upon their shortcomings. When rules are set up to guide their development and the rule makes them stumble, we bend the rule. This is undoubtedly proper at their first entrance into the world of obligation and responsibility, but carry it so far that the very idea of effort and the fundamental difference

between doing and failing to do are lost, forgotten alike by the teacher and by the student and absolutely unsuspected by the parent.

The moral is plain. It is hard enough to say: you have not done what you should have done; you have wasted your many chances; we have both warned and aided you, and you have given nothing of yourself; therefore find your own way outside the path that leads to praise and glory, and perhaps to wealth and power. Still harder, and indeed cruel, is to say: you have tried your best, but you are not made for the life you have chosen. Nature denied you the eye, hand and brain.

But, I submit that there is a cruelty far greater than either of these, an easy, indolent, irresponsible cruelty, which is to see the young, with their bursting energies and hopes and ambitions, flounder for lack of that special encouragement which is called Difficulty; to see them grow up full of fresh intelligence but with an Intellect like a garden full of weeds; to see them so naively pleased with their own accomplishments that the first stern demand, too long postponed, must be a shattering blow; to see them so accustomed to their own pace that they do not suspect the deep layers of grit and motherwit they hold within; to see them, finally, when well past college age, discover with shame and remorse what they might have been, if, instead of being neglected like mongrels or incubated like sickly growths, they had been urged and pressed and compelled to perform to the limit of their talents.

It is therefore not for the sake of turning out more engineers than Russia, not to manufacture as many linguists as the State Department wants, not to provide the colleges with enough teachers, it is not even to enable the du Pont Company to hire more chemists and produce the ultimate plastic which shall be food, clothing, and shelter all in one—it is not for these imperative or alluring prospects that this country must radically change its attiude toward scholastic excellence: it is simply and solely to put an end to the cruel injustice of letting rot, through protracted cowardice masquerading as kindness, the unimaginable endowments of youth and the tradition of Intellect which is their birthright.

THE FUNGUS FLORA OF AGRICULTURAL SOILS IN VIRGINIA

I. AQUATIC PHYCOMYCETES

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INTRODUCTION

It is generally accepted that the fungi constitute a significant group in the vast array of organisms known as the soil microbiota. Like many similar biological complexities, the details of the relationships, the activities, and the functions of these fungi are still obscure. Although similiar studies have been made in certain areas of the United States, no previous attempt has been made to investigate the fungus flora of Virginia soils.

During the past four years, the writer and his students have made over 1500 collections for soil-inhabiting fungi from areas which include Montgomery County and five surrounding counties of southwestern Virginia. The methods of collection and isolation were essentially those described by Sparrow (1943) and Raper (1937), and were limited by intent to the aquatic phycomycetous fungi. The isolation procedure and single spore pure-culture techniques followed closely those described by Johnson (1956). An effort was made to obtain in pure culture for future studies all filamentous species. No attempts were made to obtain cultures of chytridiaceous species. All cultures are maintained in this laboratory and are available for future investigations.

The following fungi were identified during the present study. Citations for the specific binomials are given, but synonyms are not listed. No discussion of species limits is undertaken in this report for synonymous taxa, reference is made to Coker and Matthews (1937), Sparrow (1943), Johnson (1956), and Gilman (1957).

FUNGI COLLECTED

Chytridiales

Rhizophlyctis rosea (deBary and Woronin) Fischer, Rabenhorst Kyptogamen Fl., *1*: 122. 1892.

Rhizophlyctis petersenii Sparrow, Proc. Amer. Phil. Soc., 78: 48. 1937.

Rhizophydium carpophilum (Zopf) Fischer, Rabenhorst Kryptogamen – Fl., *1*: 95. 1892. Parasitic on the oogonia of *Saprolegnia sp.*

Rhizophydium pollinis-pini (Braun) Zopf, Abhandl. Nat. Gesel. Halle, *17*: 82. 1887.

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Cladochytrium replicatum Karling, Amer. J. Bot., *18*: 538. 1931.

Nowakowskiella hemisphaerospora Shanor, Amer. J. Bot., *29*: 174. 1942.

Nowakowskiella ramosa Butler, Mem. Dept. Agr. India Bot. Ser. *1*: 141. 1907.

Nowakowskiella elegans (Nowak.) Schroeter, In Engler und Prantl, Naturclichen Pflanzenfam., *1*: 82. 1892.

Rozella achlyae Shanor J. Elisha Mitchell Sci. Soc., *58*: 100. 1942. Parasitic in *Achlya sp.*

Rozella allomycis Foust, J. Elisha Mitchell Sci. Soc., *53*: 198. 1937. Parasitic in the thalli of *Allomyces anomalus* Emerson.

Olpidium rhizophlyctidis Sparrow, Mycol., *40*: 449. 1948.

Hyphochytriales

Hyphochytrium catenoides Karling, Amer. J. Bot., *26*: 512-513. 1939.

Blastocladiales

Catenaria anguillulae Sorokin, Ann. Sci. Nat. Bot. VI, *4*: 67. 1876.

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Allomyces javanicus Kniep, Ber. Deuts. Bot. Ges., *47*: 211. 1929.

Allomyces anomalus Emerson, Lloydia, *4*: 133. 1941.

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Monoblepharidales

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Aphanomyces stellatus deBary, Jahrb. wiss. Bot. *2*: 178. 1860.

Aphanodictyon papillatum Huneycutt, J. Elisha Mitchell Sci. Soc., *64*: 279. 1948.

Brevilegnia diclina Harvey, J. Elisha Mitchell Sci. Soc., *42*: 243. 1927.

Brevilegnia linearis Coker and Braxton, J. Elisha Mitchell Sci. Soc., *42*: 214. 1927.

Dictyuchus monosporus Leitgeb, Jahrb. wiss Bot., 7: 357. 1869.

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News and Notes

(Editor's Note — News contributions should be sent to the person whose name appears at the end of the appropriate sections.)

AGRICULTURE SECTION

Mr. C. I. Rich, Professor of Agronomy at Virginia Polytechnic Institute, was elected Chairman of the Soil Chemistry section of the Soil Science Society of America.

Recent staff appointments to the Agronomy staff at V.P.I. were Mr. J. Sundstrom as Instructor and Mr. W. J. Meyer as Assistant Professor. Mr. Sundstrom is a graduate of the University of Missouri while Mr. Meyer received his degrees at Ohio State and Perdue.

Commissioner Parke C. Brinkley and Dr. W. L. Bendix, State Veternarian and Director of the Division of Animal and Dairy, Virginia Department of Agriculture, received a Certificate of Appreciation from the United States Department of Agriculture for its fast action in eradicating Vesicular Exanthema from swine in the state.

Mr. Rodney C. Berry, State Chemist and Director of the Division of Chemistry and Foods of the Virginia Department of Agriculture received the 1960 Distinguished Service Award from the Virginia Section of the American Chemical Society.

Mr. William R. Maynard, Jr., of the Virginia Department of Agriculture's Drug Laboratory has been named to the 60-man Board of Revision of the United States Pharmacopoeia. Mr. Maynard, who will serve a 10-year term, was selected from more than 1,000 nominees.

Paul B. Siegel

ASTRONOMY, MATHEMATICS PHYSICS SECTION

Hollins College is planning for a new science building. Construction will begin in the near future.

The University of Virginia is offering a Summer Research Participation Program under the auspices of N.S.F. Fellowships are available to both high and college teachers of Physics. It is hoped that the program may be offered in future years. Information may be obtained by writing

Prof. J. W. Beams.

The new science building at Lynchburg College has been recently dedicated. It houses the departments of Physics, Biology, Chemistry and Mathematics.

Mr. James Jacobs has been appointed chairman of the Department of Physics at V.P.I. He comes from the University of Iowa where he was Professor of Physics and Director of Nuclear Research. Mr. Keith Furr will join the Physics Faculty in September. He recently completed his graduate work at Duke University.

Mr. Wilbur Payne has resigned from the Physics staff at V.P.I. in order to join the staff of O.R.O.

The master's degree program at William and Mary is growing rapidly. It is being offered to selected personnel of NASA. The staff will be increased by the addition of two new assistant professors, Mr. J. D. Lawrence recently at U. Va., and Mr. McClay from the University of Missouri.

Prof. I. G. Foster of the Physics Dept. of V.M.I. has recently resigned. He will become chairman of the Division of Mathematics and Science at Florida Presbyterian College at St. Petersburg.

Mr. Robert Yates of William & Mary's Department of Mathematics has resigned to join the staff of the University of South Florida at Tampa.

I. G. Foster

BACTERIOLOGY SECTION

The Virginia Branch of the Society of American Bacteriologists met October 3, 1959 at the Medical College of Virginia, Richmond, in conjunction with the Laboratory Section of the Virginia Public Health Association. Part of the program was a symposium: "Staphylococci Phage Typing." The elected officers for the calendar year 1960 were, President, Quentin Myrvik; Vice President, Catherine M. Russell; Secretary-Treasurer, Wesley A. Volk; Section Editor P. Arne Hansen; Councilor, Herbert Welshimer.

P. Arne Hansen

BIOLOGY SECTION

The Departments of Science (Biology, Chemistry and Physics) of

Emory and Henry College have received an NSF grant to defray expenses of a summer institute for high school graduates. It is expected that 50 students will participate in the five weeks course covering Physical Science, Chemistry and Radiation Biology. The courses will be taught by W. T. Graybeal, T. H. Ma, W. Stamper and Professor Young.

Mr. Fred S. Orcutt has been named head of the Virginia Polytechnic Institute Biology Department, effective January 1, 1960.

Mr. W. W. Scott, Virginia Polytechnic Institute, was on leave of absence January 15 to June 15. He accepted a visiting professorship at the University of Wisconsin, in botany, for the second semester, 1959-60.

Mr. Perry C. Holt of the Biology Department, Virginia Polytechnic Institute, has been awarded a grant of $14,500 by the National Science Foundation to enable him to continue his studies of the systematics of the oligochaete family Branchiobdellidae. The grant is for a period of three years and will make possible collecting trips to the western United States and Mexico.

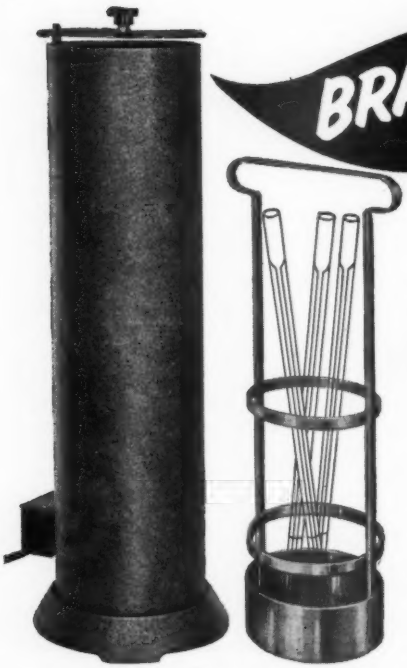
Professor Ruskin S. Freer of Lynchburg College was the recipient of an honorary Doctor of Science degree from Culver-Stockton College, February 3, 1960.

Mr. Jack D. Burke of the University of Richmond was a National Science Foundation Lecturer at the Summer Institute of Columbia College, Columbia, South Carolina in August, 1959. His three weeks course was entitled "Recent Advances in the Principles of Zoology." The National Institute of Health has awarded Mr. Burke a grant of $15,755 for a three-year study of "Fish-blood oxy-hemoglobin affinity." This study will be done in Virginia fresh waters.

Mr. James N. Dent, on leave from the University of Virginia, is conducting research at the Gatty Marine Laboratory, St. Andrews University, Scotland, under a Guggenheim Fellowship.

Mr. Billy E. Frye, Visiting Assistant Professor in the Department of Biology, University of Virginia, has been awarded a grant for $16,687 by the National Science Foundation for continuing his studies on the functional development of the pancreas.

Mr. I. D. Wilson, formerly Head, Department of Biology, Virginia Polytechnic Institute, and now serving with the United States Technical Cooperation Mission, Izatnagar, U. P., India, wrote that he and Mrs. Wilson plan to return to the United States this year. They are scheduled to sail from Bombay on April 13, spend two months in Europe, reaching home in Blacksburg, Virginia, in the later part of June. Mr. and Mrs.



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Wilson participated in a tiger hunt during the holiday season at the camp of a friend. Mr. Wilson was stationed at a machan, where he sat with his camera accompanied by another guest with a rifle. Their host was perched in a nearby tree. Mrs. Wilson rode an elephant in the line of beaters. At one point her elephant almost bolted, so she dismounted while the beast was quieted. In so doing she almost stepped on the tiger's tail as it lay hidden in the deep jungle. Finally she remounted and drove in, not one but two tigers. In the excitement Mr. Wilson forgot to snap his camera, and the guest failed to shoot. Their host, however, came to the rescue and shot one of the tigers. The other bounded away into the jungle and escaped.

W. S. Flory Jr., University of Virginia, has received a National Science Foundation grant of $22,000 for the support of a biosystematic analysis of *Zephyranthes* and of *Hymenocallis*.

W. S. Flory Jr.

ENGINEERING SECTION

It is with deep regret that the passing on January 5 of Professor Frank Vilbrandt is recorded. Professor Vilbrandt, long head of the chemical engineering department at Virginia Polytechnic Institute, where he has taught since 1935, was responsible for building this department to its present important position in its field.

Professor Fred Bull, head of the Virginia Polytechnic Institute chemical engineering department, has announced that his group has moved in its new building where it occupies 50,000 square feet in offices, classrooms, ten large research laboratories and a well equipped unit operations laboratory towering fifty feet through four floors. Professor Stuart B. Row of this chemical engineering department has been appointed Assistant Director of the Virginia Engineering Experiment Station. Professor Nelson F. Murphy is co-author of a paper "Properties of the Water-Benzene-Triethylene Glycol Dimethyl Ether System" in *Chemical and Engineering Data* for April 1960.

Mr. Tilton E. Shelburne of the Virginia Council for Highway Investigation and Research has continued as a member of the Advisory Committee of the AASHO Road Test and attended a meeting of this committee in LaSalle, Illinois in May. Mr. Shelburne and Professor William Zuk of the civil engineering department at the University of Virginia attended a conference on Road Loading Mechanics held by the National Academy of Science in Washington in April. Professor Zuk has published a paper in the *Journal of Aeronautical Sciences* on "A Method

of Transforming Concentrated Surface Forces into Continuous Surface Forces."

Dean Lawrence R. Quarles of the Engineering School, University of Virginia, and Professor Orville Harris of the electrical engineering department attended the First International Meeting of the Institute of Radio Engineers in March. Dean Quarles also attended the national meeting of the AIEE in New York in February. He has been elected Chairman of the Virginia Section of the AIEE. Professor Robert L. Ramey of the electrical engineering department has published a paper in the *Proceedings of the American Vacuum Society* on the subject "Design and Theory of Sub-Miniature Ionization Gauge Tubes."

R. M. Hubbard

VIRGINIA ACADEMY OF SCIENCE

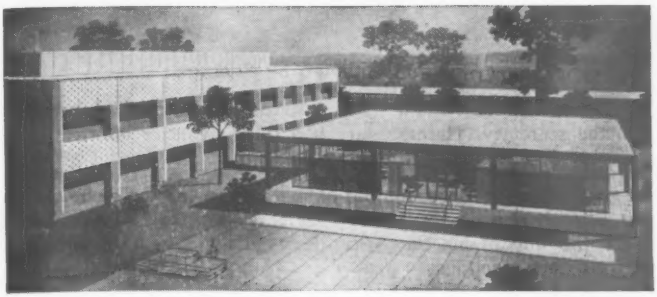
MINUTES OF COUNCIL MEETING — MARCH 12, 1960

The meeting was held at the University Center, Richmond, Virginia. Dr. Hinton called the meeting to order at 10:35 a.m. Others present were:

Dr. Wilson Bell	Col. H. W. K. Fitzroy
Dr. Horton Hobbs	Mr. William Gresham
Dr. Thomas Gilmer	Dr. Lynn Abbott
Dr. J. C. Forbes	Dr. Jack Burke
Mr. Jackson Taylor	Dr. Fontaine Armistead
Mr. E. S. Harlow	Dr. E. C. Cogbill
Mr. Foley Smith	Dr. Lewis Goldstein
Dr. Boyd Harshbarger	Mr. William Wartman, Jr.

Local Arrangements Committee Report:

At Dr. Hinton's invitation, members of the Local Arrangements Committee attended the meeting. Mr. Gresham, Chairman, distributed copies of the General Program for the May meeting and members of the committee reported briefly on their activities. It was suggested that certain materials which are used each year, such as signs, be stored and made available to succeeding committees. Dr. Armistead suggested that a permanent chairman for local arrangements be considered. Mr. Gresham was asked to make a list of suggestions which would be useful to future local arrangement committees.



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Dr. Abbott reported that a hotel information listing had been forwarded to the secretary. The secretary had this and other information on the meeting ready for mailing to the membership.

The necessity of a large number of meeting rooms for technical sessions and extensive space for Junior Academy exhibits and commercial exhibits for the annual meeting was discussed. This was in regard to planning for future meetings.

Since the minutes of the last meeting are published in the Journal, a motion was passed that they not be read at this meeting. The president announced the appointment of a committee consisting of Doctors Bell, Harshbarger, Ross, and Kral to study the operation of the Virginia Journal of Science and to report at the May meeting of the council.

Treasurer's Report and 1960 Budget:

The treasurer gave a brief report; the balance in the General Fund on March 1, 1960 was $2,138.03.

Dr. Harshbarger presented the report of the Finance and Endowment Committee, which included the proposed budget for 1960.

A motion was passed that the treasurer's report and the budget for 1960, as recommended by the Finance and Endowment Committee, be approved.

Business Membership Committee Report:

Mr. Harlow, Chairman of the Business Membership Committee, presented a report in which it was recommended that the names of the business members be presented in an appropriate place of distinction in all issues of the Journal. A motion was passed that this be done.

The report also outlined a program for soliciting new business members. A letter to prospective members from the committee chairman will be followed up by personal contacts from committee members. Business membership certificates will be given to business members.

In the report it was also recommended that business firms desiring memberships, other than business, be asked to designate an individual for such a membership, since such memberships are only for individual members.

The council accepted the report of this committee, concurring in its recommendations.

In soliciting new individual memberships, Dr. Hinton described a plan for an academy member on the faculty of colleges and universities to contact new faculty members. Dr. Hinton will also write letters to

these new faculty members inviting them to become academy members.

Report of Visiting Scientists Committee:

Colonel Fitzroy reported that the vsiting scientists program initiated last fall was well received as evidenced by letters from both the participating institutions and the visiting scientists. All but three four-year colleges in the states participated.

An application has been submitted to the National Science Foundation for funds to support a similar program for the 1960-61 academic year.

Dr. Forbes suggested that council give some thought to a similar program at the secondary school level, with the Academy and the University Center, jointly, submitting an application to the N.S.F. for funds to support such a program. He further suggested that the section chairmen be requested to express their thoughts on this matter.

Report of Research Committee:

Mr. Taylor reported that three grants had been awarded this year and several more are pending. The committee will meet on May 7 to select the recipient of the Horsley Award.

One of the members suggested that the academy might do more in publicizing the availablity of research grants. He pointed out that small grants are not easily available from other sources. Mr. Taylor cited the failure of many applicants to file proper applications.

A committee, composed of Dr. Horton Hobbs, Dr. Wilson Bell and Dr. Boyd Harshbarger was appointed to select the two recipients of the Goethe Award for this year.

Mr. Taylor suggested that in the future a standardized procedure be adopted for selecting the recipients of the Goethe Award, and that requirements and the procedure for submitting applications be publicized.

Announcements:

Dr. Robert Yates will leave the state at the end of this college year. His resignation was accepted with regret and at the May meeting a council member will be elected fill his unexpired term.

In accordance with the authorization voted at the Business Meeting of the Education Section in May, 1959, this section has been disbanded. Council was notified of this action by Mr. G. W. Kent, Acting Chairman.

The usual meeting of section chairmen will not be held at the May meeting. Dr. Hinton will invite the section chairmen to attend the council

meeting on Thursday, May 12.

The meeting was adjourned at 1:25 p.m.

William Wartman, Jr.
Assistant Secreary-Treasurer

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NOTICE TO CONTRIBUTORS

Contributions to the Journal should be addressed to Robert D. Ross, Virginia Polytechnic Institute, Blacksburg, Virginia. If any preliminary notes have been published on the subject which is submitted to the editors, a statement to that effect must accompany the manuscript.

Manuscripts must be submitted in triplicate, typewritten in double spacing on standard 8½" x 11" paper, with at least a one inch margin on all sides. Manuscripts are limited to seven pages, with the proviso that if additional pages are desired, the author may obtain them at cost. The author may estimate the length of his paper by counting the total number of characters, including blank spaces, and dividing this by 3300. The result is the approximate number of printed pages in the Journal.

Division of the manuscripts into subheadings must follow a consistent plan, and be held to a minimum. It is desirable that a brief summary be included in all manuscripts.

Footnotes should be included in the body of the manuscript immediately following the reference, and set off by a dashed-line above and below the footnote content. Footnotes should be numbered consecutively from the beginning to the end of the manuscript.

Bibliographies (Literature Cited, References, etc.) should be arranged alphabetically according to author. Each reference should include the date, full title of the article, the name of the Journal, the volume, number (optional), pages, tables and figures (if any). For example: "Sniffen, Ernest W. 1940. Cobbles from the Pleistocene Terraces of the Lower York-James Peninsula Va. Journ. Sci., 1 (8): 285-288 1 fig., 1 tab. Reference to the bibliographic citations should not be made by numbers. Instead, using the above citations, where a reference is desired: either "Sniffen (1940)", (Sniffen, 1940: 186)", or "Sniffen (1940) states that . . ."

Explanation of figures, graphs, etc., should be typed on separate pages. All figures should be numbered consecutively beginning with the first text figure and continuing through the plates. If figures are to be inserted in the text this should be clearly indicated by writing "Figure —" at the appropriate place in the margin.

Illustrations including lettering, should be arranged so that on reduction they will not exceed the dimensions of the maximum size of a printed page. 4-1/2" x 6-1/2", and so that they are well balanced on the page. Large plates must be accompanied by 8-1/2" x 11" photographic copies which can be sent to the reviewers. The Journal will furnish the author with one plate (halftone or line reproduction) or its equivalent; additional figures, colored illustrations or lithographs may be used only if the author makes a grant covering the cost of production. Original drawings (which must be done in black drawing ink) not photographs of drawings, should accompany the manuscript. Photographs should not be used if a line and dot (stippled) drawing will suffice. If photographic prints are to be used they should be glossy, sharp and show good contrast. Drawings not neatly executed and labeled (do not use a typewriter), or which are submitted on yellow or yellowish-white paper will not be accepted.

Galley Proofs and engraver's proofs of figures are sent to the author for correction. Costs of excessive changes from the original manuscript must be defrayed by the author.

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